

FIGURE 305-A: BELOW GROUND HYDRANT

- This is the standard for retic pipelines.
- Only spring hydrants permitted.
- Trafficable or non-trafficable.
- Refer to MRWA-W-303 for details.

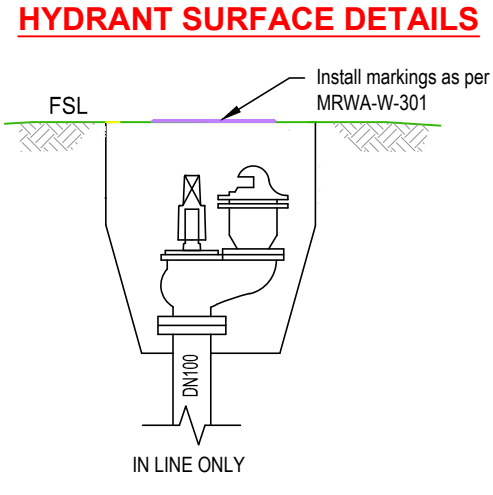


FIGURE 305-B: BELOW GROUND ALL IN 1 VALVED HYDRANT

- Only for SEW for mains >DN250
- Only spring hydrants permitted.
- Non-trafficable where practical.
- Not to be offset from main.
- Refer to MRWA-W-303 for details.

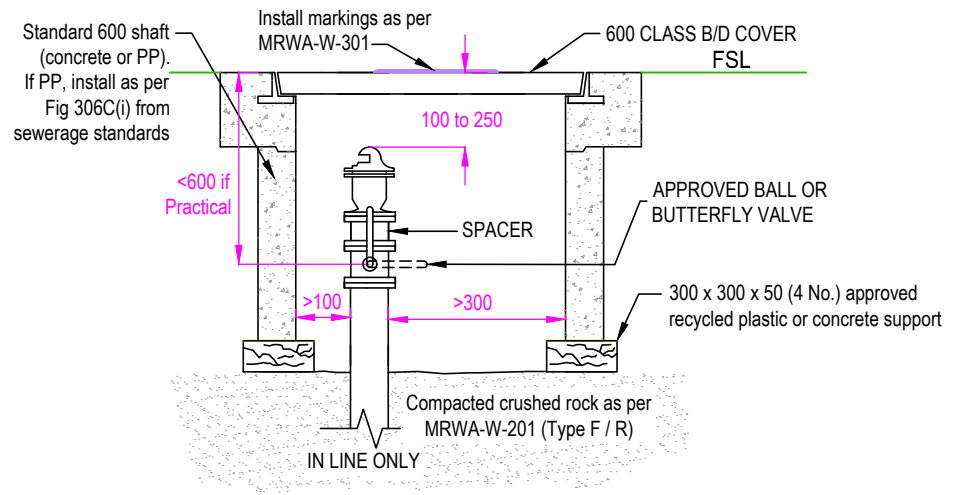


FIGURE 305-C: BELOW GROUND IN LINE HYDRANT WITH ISOLATION VALVE

- Use for CWW or YVW where:
 - Main is >DN250.
 - An offset hydrant would normally be required but this requirement cannot practically be accommodated due to site constraints, ie: other assets too close.
- Non-trafficable where practical.
- Only use spring hydrants.
- All such hydrants are to be Water Agency owned and **not** included as part of fire fighting spacing (as cannot be accessed by fire fighters).
- Approved polymeric (non-trafficable) or concrete (trafficable) shaft may be used.

NOTES on Figures 305-A, B & C:

- Refer to MRWA-W-303 for surface cover arrangements for hydrants.
- Refer Table 301-B for hydrant marking arrangements.
- Hydrants are not to be used in low pressure applications (< 20 m), eg: some irrigation only NDW systems.
- Spring hydrants are not automatic and require manual opening to allow air ingress and egress.

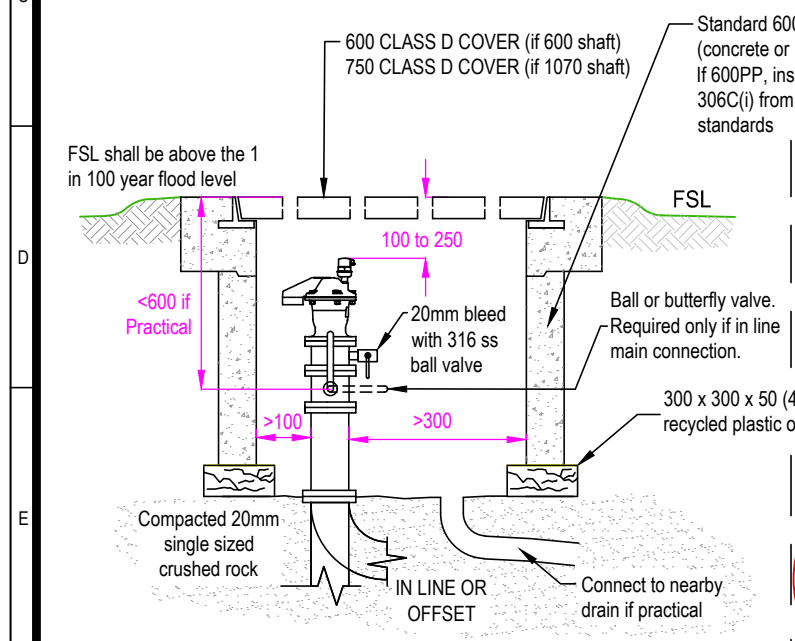


FIGURE 305-D: BELOW GROUND AIR VALVE WITH ISOLATION VALVE

- Only for CWW & SEW air valves in non trafficable areas where the air valve is short and would not protrude above ground.
- Not preferred by YVW.
- Approved polymeric or concrete shaft may be used as per gravity sewerage standards.
- 40mm diameter holes to be cut into cover (or use grated cover) equal in area to 1.5 x the air valve orifice area. The cover, once holed, is no longer capable of withstanding the traffic loads.
- Cover should lie 25mm above the surrounding natural surface level (not to protrude excessively above ground). Surface level shall be above the 1 in 100 year flood level.
- Valve **not** required at the offtake where the in line arrangement is used.

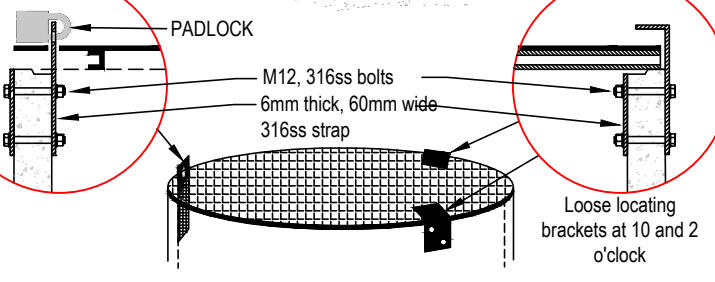
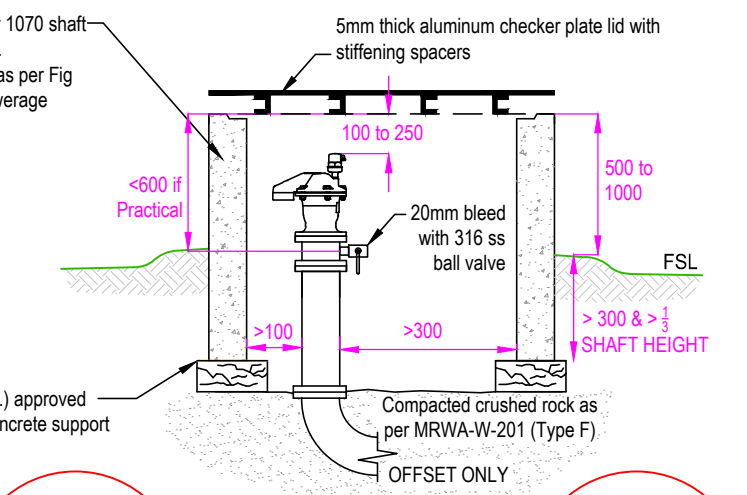


FIGURE 305-E: ABOVE GROUND LARGER AIR VALVES

- Use only concrete shaft.
- Use sufficient 316SS fastened or welded aluminum stiffening angle to support cover to ensure <math>< 10\text{mm}</math> deflection with a centered 100 kg load.
- Locate shaft well back from roadway (ie: >5m) if CWW or SEW.

AIR VALVE DETAILS

NOTES Regarding Details D & E:

- Isolation valve must be operable from surface if 600Ø shaft is used to house the air valve.
- Approved 600Ø sewer maintenance shaft and cover preferred for air valves less than 300Ø.
- Approved 1070Ø sewer access shaft shall be used for air valves greater than 300 in width. 600 neck shall be located over clear ground (not over the air valve).
- Minimise pit depth, step irons required for 1070Ø shaft > 1000 deep.
- Lay shaft and supports on compacted 20mm single sized crushed rock (self draining) to 95% rd density. This crushed rock should extend to the embedment layer, extend the full width of the trench and to a distance of 1m from fitting in both directions.

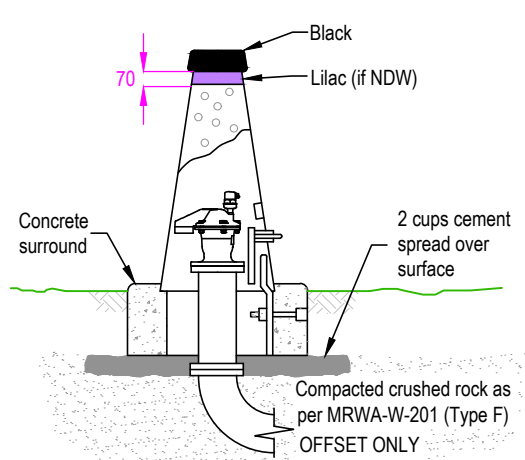


FIGURE 305-F: ABOVE GROUND SMALL AIR VALVES

- Use where not SEW and:
 - The required air valve is small enough to fit within the cover, and
 - For YVW air valves, or
 - For CWW air valves when the air valve is well back from the road (ie: >5m).
- 40mm diameter holes to be drilled into cover equivalent in area to at least 1.5 x the air valve orifice area.

NOTES Regarding Air Valves:

- All options posed here are non trafficable. Air valves shall not be located in trafficable locations.
- Air valve and riser pipe (from main) should be sized according to the orifice cross sectional area(s), not the bore area of the air valve.
- Where an air valve > DN200 is calculated as required, multiple smaller valves shall be installed on a manifold instead (ie. 2 x DN200 should be used instead of a single DN300) and the shaft designed accordingly.
- Air valve marking arrangements only required where L type hydrant covers are used.

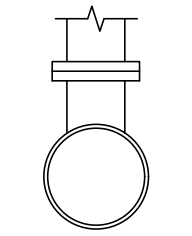


FIGURE 305-G: STANDARD IN LINE CONNECTION

Only for use in conjunction with Figures 305-A, B, C or D.

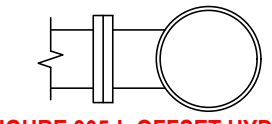


FIGURE 305-I: OFFSET HYDRANT CONNECTION TO MAINS $\leq DN150$

- Only for use in conjunction with Figure 305-A.
- A valve is usually **not** fitted between the hydrant / air valve and the offtake tee.

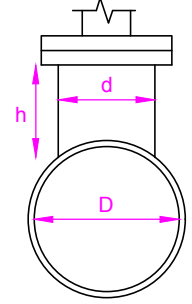


FIGURE 305-J: INVERTED SCOUR TEE CONNECTION FOR MAINS $\geq DN225$

- Only for use in conjunction with Figures 305-A, D, E or F.
- Fit valve directly to the offtake tee.

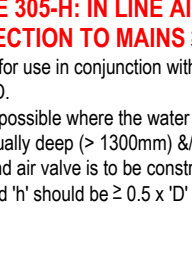


FIGURE 305-H: IN LINE AIR VALVE CONNECTION TO MAINS $\geq DN375$

- Only for use in conjunction with Figure 305-D.
- Only possible where the water main is unusually deep (> 1300mm) &/or an above ground air valve is to be constructed.
- 'd' and 'h' should be $\geq 0.5 \times 'D'$

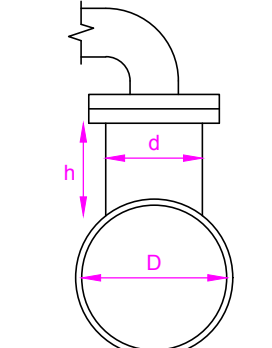


FIGURE 305-K: OFFSET AIR VALVE CONNECTION TO MAINS $\geq DN375$

- Only for use in conjunction with Figures 305-D, E or F.
- Only usually possible where the water main is unusually deep (> 1300mm) &/or an above ground air valve is to be constructed.
- 'd' and 'h' should be $\geq 0.5 \times 'D'$
- Place special flanged bend directly on tee to initiate a horizontal alignment.

MAIN CONNECTION DETAILS

REV	DESCRIPTION	DATE	APPROVED
3	MINOR AMENDMENTS	1/12/16	RJ / CP / JT
2	PUBLISHED FIRST ISSUE	04/04/12	R.JAGGER
1	PRE PUBLISHED DRAFT FOR COMMENT	12/07/11	R.JAGGER

DESIGNED	R. JAGGER	DATE	25/02/2011	
DRAWN	D. TOLENTINO	DATE	25/02/2011	
CHECKED:	NAME	DATE	APPROVED: NAME DATE	
<input checked="" type="checkbox"/>	CWW	C. RIVETTE	04/04/12	<input checked="" type="checkbox"/> CWW R.CARRUTHERS 04/04/12
<input checked="" type="checkbox"/>	SEWL	C.PAXMAN	04/04/12	<input checked="" type="checkbox"/> SEWL G.REYNOLDS 04/04/12
<input checked="" type="checkbox"/>	YVW	K.DAWSON	04/04/12	<input checked="" type="checkbox"/> YVW A.COSHAM 04/04/12

MELBOURNE RETAIL WATER AGENCIES

MRWA WATER SUPPLY STANDARDS

HYDRANT AND AIR VALVE FITTING DETAILS

NOT TO SCALE

MRWA-W-305

ISSUED 2012 REVISION NO. 3